



STPS80L15CY

LOW DROP OR-ing POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

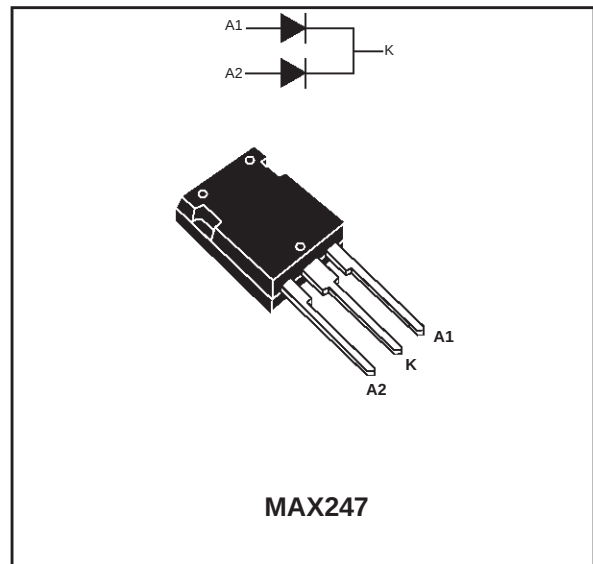
$I_{F(AV)}$	2 x 40 A
V_{RRM}	15 V
T_j (max)	125 °C
V_F (max)	0.33 V

FEATURES AND BENEFITS

- VERY LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- OPTIMIZED CONDUCTION AND REVERSE LOSSES TRADE-OFF WHICH MEANS THE HIGHEST EFFICIENCY IN THE EQUIPMENTS

DESCRIPTION

The STPS80L15CY utilizes proprietary barrier technology to optimize forward voltage drop for OR-ing functions in n-1 fault tolerant Switch Mode Power Supplies.



ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			15	V
I _{F(RMS)}	RMS forward current			60	A
I _{F(AV)}	Average forward current	T _c = 105°C δ = 0.5	Per diode Per device	40 80	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal		600	A
I _{RRM}	Repetitive peak reverse current	t _p = 2 μs F = 1kHz square		2	A
T _{stg}	Storage temperature range			- 55 to + 150	°C
T _j	Maximum operating junction temperature			125	°C
dV/dt	Critical rate of rise of reverse voltage			10000	V/μs

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case	Per diode	0.7	°C/W
		Total	0.4	
R _{th(c)}	Coupling		0.1	

When the diodes 1 and 2 are used simultaneously:
 $\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = 5V			4	mA
		T _j = 100°C			210	400	
		T _j = 25°C	V _R = 12V			6	
		T _j = 100°C			310	600	
V _F **	Forward voltage drop	T _j = 25°C	I _F = 40 A			0.43	V
		T _j = 100°C	I _F = 40 A		0.28	0.33	
		T _j = 25°C	I _F = 80 A			0.53	
		T _j = 100°C	I _F = 80 A		0.42	0.47	

Pulse test : * t_p = 5 ms, δ < 2 %

** t_p = 380 μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :

$$P = 0.19 \times I_{F(AV)} + 0.0035 \times I_{F(RMS)}^2$$

Fig. 1: Average forward power dissipation versus average forward current (per diode).

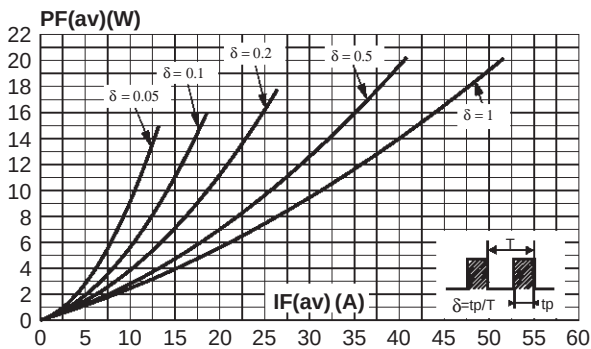


Fig. 2: Average forward current versus ambient temperature (δ=0.5, per diode).

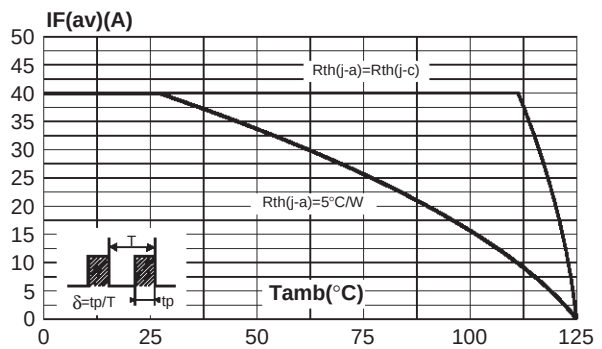


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

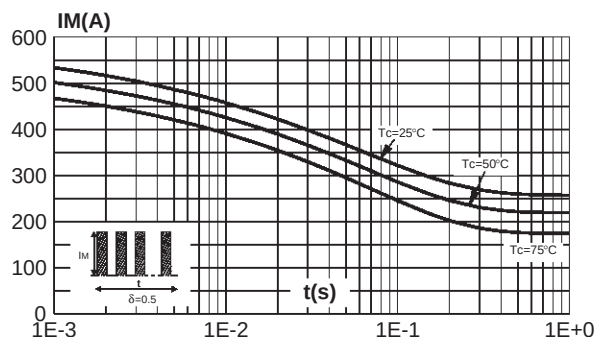


Fig. 4: Relative variation of thermal impedance junction to case versus pulse (per diode).

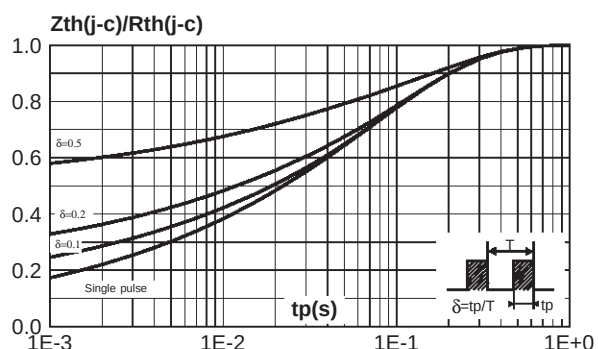


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

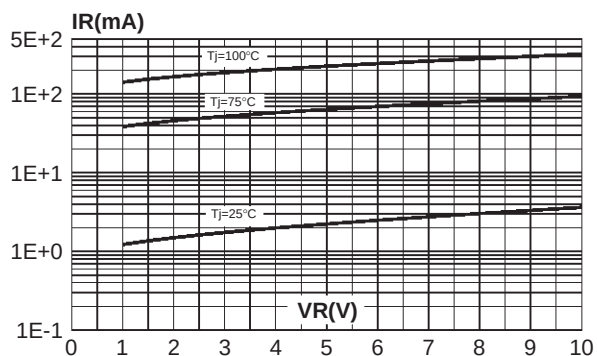


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

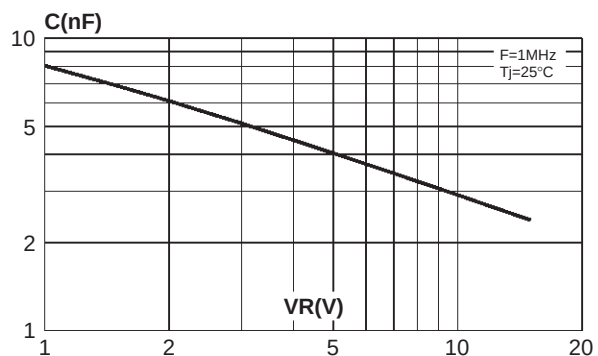
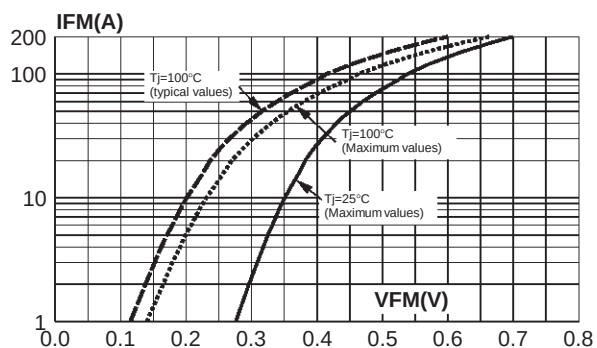
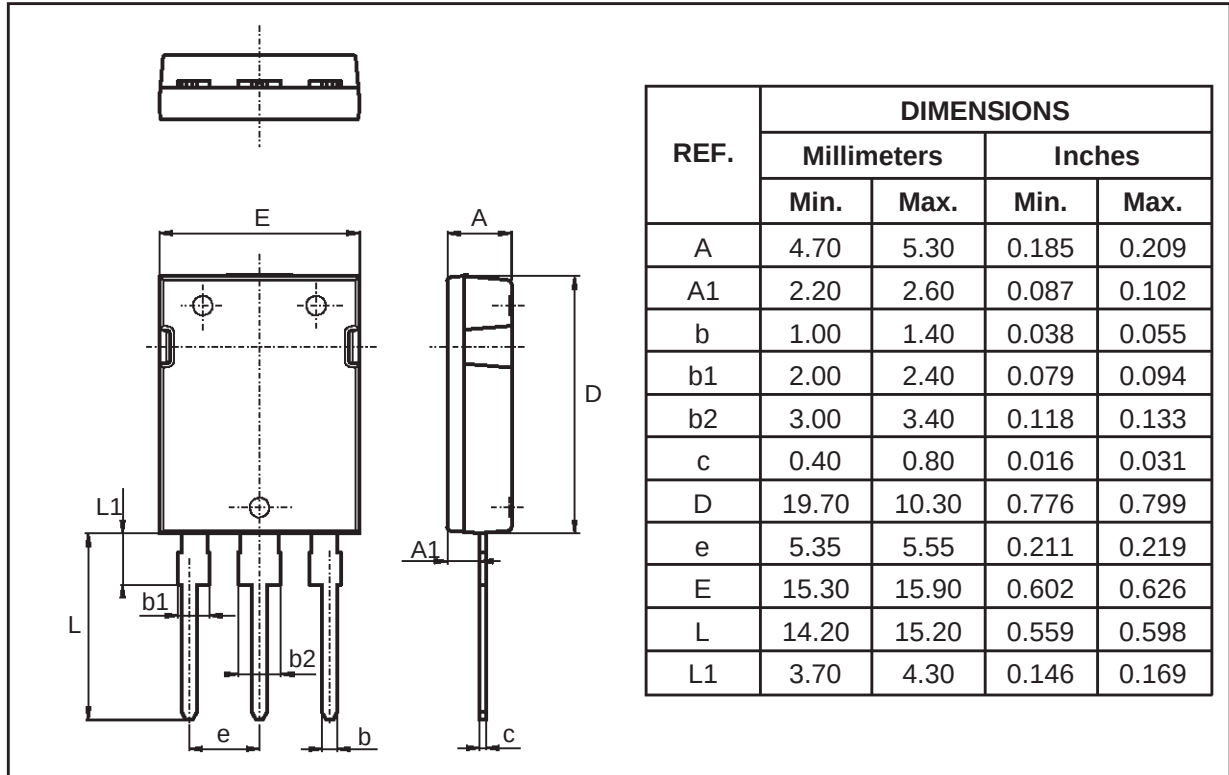


Fig. 7: Forward voltage drop versus forward current (per diode).



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PACKAGE MECHANICAL DATA MAX247



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS80L15CY	STPS80L15CY	MAX247	5g	30	Tube

- Epoxy meets UL94,V0
- Cooling method: C

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